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Conference Abstract

Addressing the proposal for new Darwin Core terms for interaction data

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Abstract

A proposal has been made to create new terms in the Darwin Core Standard to represent biological interaction/species interaction concepts in raw data. The motivation is to consistently perform vertical integration of raw data e.g. to facilitate discovery of larger, more representative datasets.

The proposition may be problematic because the word 'interaction' is ambiguous, e.g. being used to refer to a 'behavioural interaction between individual organisms' or an 'ecological interaction between populations'. In addition, both of these concepts are high-level abstractions from raw (e.g. ecological) data, which are often incomplete or uncertain, and require an objective causal inference to be made by a machine before they can be instantiated (rather than a subjective human interpretation). In contrast, the Darwin Core terms describe low-level knowledge of the data record itself, e.g. what taxon is represented by the record, and where and when the organism was observed.

The potential uses of the broad and heterogeneous class of 'interaction data' therefore need to be better understood. Semantic mediation and semantic enrichment (e.g. by causal inferencing), for particular purposes, can then take place. In other words, a specialized knowledge-based system/expert system needs to be designed to ensure that data that potentially represent ecological interactions can be objectively interpreted using appropriate knowledge models (e.g. ontologies).

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The implications of this, for the proposal to extend the Darwin Core vocabulary with terms describing interactions, are discussed.

Keywords

semantic heterogeneity, ontologies, semantic mediation, conceptual abstraction, interpretatio

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